



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,270	02/17/2004	Benedict A. Itri	59028-8002.US01	2044
22918	7590	07/09/2007		
PERKINS COIE LLP P.O. BOX 2168 MENLO PARK, CA 94026			EXAMINER DEPPE, BETSY LEE	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 07/09/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/781,270

Applicant(s)

ITRI, BENEDICT A.

Examiner

Betsy L. Deppe

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 2/17/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to because:

a. in Figures 3 and 4, " R_T and R_N " are inconsistent with the corresponding detailed description (for example, see "RT" and "RN" on page 6). Either the specification must be amended or corrected drawing sheets in compliance with 37 CFR 1.121(d); and

b. Figure 5 should clearly show the modulus control circuit 158 providing a control signal to divider 150 (see page 7, lines 24-26). Currently, Figure 5 shows divider 152 as providing a signal to divider 150.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet"

or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the circuitry for receiving and circuitry for recovering, as recited in claim 14, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

4. The abstract of the disclosure is objected to because it refers to purported merits of the application (e.g. high precision and transmitted with very little bandwidth).

Correction is required. See MPEP § 608.01(b).

5. The disclosure is objected to because of the following informalities:

- a. on page 2, line 19, "Receicer" should be "Receiver";
- b. on page 7, line 8, "transceiver 104" should be "**transmitter** 104" (see page 6, lines 14, 15 and 20); and

- c. on page 11, line 4, "divider 260" should be "divider 250".

Appropriate correction is required.

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

a. the detailed description does not describe a frequency rate of the transmission of the quantized bit as "about 8kHz" as recited in claim 11, lines 3-4. According to page 8, lines 25-27, the quantized bit is transmitted every 4kHz. The Examiner suggests amending claim 11 to correspond to page 8, lines 25-27.

b. Similarly, the detailed description also does not describe a transmitting the phase relation at a frequency "equal to" the nominal rate as recited in claim 21, line 2.

Claim Objections

7. The claims are objected to because of the following informalities:

- a. in claim 14, line 15, "received timing data" should be "recovered timing data" (see line 3);
- b. in claim 14, line 17, "receiver circuitry" should be "receiver circuit" (see line 1);
- c. in claim 15, "phase" should be deleted (see claim 14, line 11);
- d. in claim 16, line 3, the Examiner suggests changing "at a transmitter" to "to a transmitter";

Art Unit: 2611

- e. in claim 17, line 3, the Examiner suggests changing "at a receiver" to "to a receiver";
- f. in claim 18, line 3, the Examiner suggests changing "said quantized phase relation is transmitted" to "transmitting said quantized phase relation" in order to be consistent with the format of method claims;
- g. in claim 19, lines 5 and 7, "of" should be inserted before "+/-" and variables N and M should be defined; and
- h. in claim 19, lines 7-8, it appears that "a nominal rate" should be "the nominal rate" since both signals should have a common nominal rate (see page 7, lines 17-18).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The detailed description does not describe circuitry that recovers received timing data from within the overhead channel.

11. Claims 1-4, 8-11, and 13-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. Claim 1, lines 10-11; claim 8, lines 1-2; and claim 16, lines 6-7 are inconsistent with page 6, lines 25-26. The respective claims recite that the data is synchronized with the network link rate whereas page 6, lines 25-26 describes transmitting data specified with the transmission rate. Since the respective claims are inconsistent with the detailed description, it is unclear which clock signal controls the transmission of the data thereby rendering the claim vague and indefinite.

13. With regard to claim 4, it is unclear which of claims 1-3 is intended to be further limited by claim 4, i.e. which claim should claim 4 depend from? "Said transmitter" on line 1 and "said phase error signal" on line 2 lacks sufficient antecedent basis without claim 4 depending from one of the previously numbered claims.

14. With regard to claim 11, it is unclear whether the frequency rate of transmission of the quantized bit should be about 8 kHz or less than 8 kHz.

15. In claim 13, it is unclear what is meant by "around recovered phase variation information" on line 18.

16. In claim 19, the term "substantially" on lines 5 and 7 is a relative term that renders the claim indefinite. The term "substantially" is not defined by the claim, the

specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear what constitutes a "substantially a nominal rate."

17. In claim 19, it is also unclear what is meant by "in an ongoing fashion" on line 11.

18. The dependent claims are rejected under the same ground(s) as the claim(s) from which they depend.

Claim Rejections - 35 USC § 102

19. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

20. Claims 1-3, 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Benayoun et al. (US Patent No. 5,790,608).

21. With regard to claim 1, Benayoun et al. discloses the claimed invention including a first clock at a first resident (e.g. clock B), a second clock related to a network link rate (i.e. reference clock), a phase device (e.g. phase comparator 281), and a network wherein the transmitter (codec B) transmits the data stream and phase error signal to the receiver (codec A) and wherein the receiver recovers an estimate of the transmission rate as a function of the phase error signal and network link rate. (See Figures 1, 3A and 3B; column 1, lines 55-65; column 4, lines 1-17; column 4, line 36 - column 5, line 22)

Art Unit: 2611

22. With regard to claim 2, Benayoun et al. discloses the claimed invention including the first and second clocks having a predefined relation and the phase device generating signals from the first and second clocks wherein these signals have a nominal frequency rate. (See column 4, lines 44-51)

23. With regard to claim 3, Benayoun et al. discloses the claimed invention including the phase device is a component of the transmitter. (See Figure 3A and column 4, lines 51-55)

24. With regard to claims 16 and 17, Benayoun et al. discloses claimed invention including providing a master clock signal (e.g. clock B) and network link clock (i.e. "reference clock"); calculating a phase relation between the master clock and network link clock (i.e. phase comparator 281 and see column 4, lines 48-51); transmitting the phase relation to the receiver (see column 4, lines 51-55); receiving the data and phase relation (see column 4, line 65-column 5, line 2); providing the network link clock to the receiver (see column 5, lines 6-8); and recovering an estimate of the master clock signal (see column 5, lines 10-22). (See also Figures 1, 3A and 3B; column 1, lines 55-65; and column 4, lines 1-17)

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benayoun et al., as applied to one of claims 1-3 and 16, respectively, above, and further in view of Itri (US Patent No. 5,864,592).

27. With regard to claim 4, Benayoun et al. discloses the claimed invention except for transmitting the phase error signal in an overhead channel. Itri ('592) discloses transmitting phase error signals in an overhead channel. (See column 6, lines 14-21) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Itri ('592) with Benayoun et al. in order to maximize data transmission in Benayoun et al. by using a separate channel for the phase error information.

28. With regard to claim 18, Benayoun et al. discloses the claimed invention including quantizing the phase relation. (See "digitizes" in column 4, lines 51-55) However, Benayoun et al. does not disclose transmitting the quantized phase relation via an overhead channel. Itri ('592) discloses transmitting phase error signals in an overhead channel. (See column 6, lines 14-21) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Itri ('592) with Benayoun et al. in order to maximize data transmission in Benayoun et al. by using a separate channel for the phase error information.

29. Claims 5-8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benayoun et al. in view of Itri (US Patent No. 5,256,980) and Soe et al. (US Patent No. 6,351,485 B1).

30. With regard to claims 5 and 8, Benayoun et al. discloses a transmitter in a communication network wherein the transmitter detects a phase difference between the transmitter clock and the network reference clock and wherein the transmitter transmits data at a rate synchronized with the network clock. (See Figure 3A; column 1, lines 36-67; and column 4, lines 32-60) However, Benayoun et al. does not disclose a first and a second variable modulus counter that divides the transmitter clock and network clock, respectively, and provides the respective outputs to the phase detector.

Itri ('980) discloses inputting clock signals to variable modulus counters prior to detecting the phase difference between the divided clock signals. (See Figure 2A and column 3, lines 15-40) It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the variable modulus counters (i.e. the frequency dividers) disclosed by Itri ('980) in the transmitter of Benayoun et al. in order to improve the precision/accuracy of the phase difference/error detection in Benayoun et al.

However, Benayoun et al. in view of Itri ('980) does not disclose a modulus control circuit responsive to the phase error signal to control the variable modulus counters. Figure 6 of Soe et al. shows a modulus control circuit (72 and 76) that controls the frequency dividers (24 and 46) in response to the phase error output of phase detector. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Soe et al. with that of Benayoun et al. in view of Itri ('980) in order to more precisely control the clock frequency range.

31. With regard to claim 6, Benayoun et al. in view of Itri ('980) and Soe et al. discloses the claimed invention including $N=1$ and $M=1$. (See Itri ('980), Figure 2A and column 3, lines 15-40)

32. With regard to claim 7, Benayoun et al. in view of Itri ('980) and Soe et al. discloses the claimed invention including the detector generating the phase error signal as quantized information. (See Benayoun et al, "digitizes" in column 4, lines 51-55)

33. With regard to claim 12, Benayoun et al. in view of Itri ('980) and Soe et al. discloses the claimed invention including the transmitter circuit being a component of a modem. (See Benayoun et al., column 1, lines 55-67)

34. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benayoun et al. in view of Itri ('980) and Soe et al., as applied to 8, above, and further in view of Itri ('592).

35. With regard to claim 9, Benayoun et al. in view of Itri ('980) and Soe et al. disclose the claimed invention except for transmitting the quantized bit in an overhead channel. Itri ('592) discloses transmitting phase error signals in an overhead channel. (See column 6, lines 14-21) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Itri ('592) with Benayoun et al. in order to maximize data transmission in Benayoun et al. by using a separate channel for the phase error information.

36. With regard to claim 10, the references disclose the claimed invention except for transmitting the quantized bit a frequency rate lower than the frequency rate of the

Art Unit: 2611

transmitter clock. It would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to transmit the quantized bit at a lower frequency based on factors such as the system requirements and the transmission rate of the overhead channel.

37. With regard to claim 11, the references disclose the claimed invention except for the recited clock frequencies. It would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to implement the disclosed transmitter in a network with the recited clock frequencies in order to improve the synchronization of such network. The specific frequency of the transmitter clock and network clock does not affect the operation/function of the disclosed circuit if there is a relationship between the frequency of the transmitter clock and the network clock.

38. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benayoun et al. as applied to claim 16 above, and further in view of Itri ('980).

39. With regard to claim 19, Benayoun et al. discloses the claimed invention except for generating the first and second signals and determining the phase corrections, as recited. Itri ('980) discloses comparing a phase relation of two signals by frequency dividing a first clock signal by a (first integer plus a phase correction) to generate a first signal and frequency dividing a second clock signal by a (first integer plus a phase correction) to generate a second signal. (See Figure 2A and column 3, lines 15-40) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the phase relation calculating steps disclosed by Itri ('980) with the

transmitter of Benayoun et al. in order to improve the precision/accuracy of the phase difference/error detection in Benayoun et al.

40. With regard to claim 20, Benayoun et al. in view of Itri ('980) discloses the claimed invention including quantizing the phase relation. (See Benayoun et al., "digitizes" in column 4, lines 51-55)

41. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Benayoun et al. in view of Itri ('980) as applied to claim 19 above, and further in view of Itri ('592). Benayoun et al. in view of Itri ('980) discloses the claimed invention except for transmitting the phase relation via an overhead channel at a frequency equal to or lower than a nominal rate.

42. Itri discloses transmitting phase error signals in an overhead channel. (See column 6, lines 14-21) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Itri ('592) with Benayoun et al. in view of Itri ('980) in order to maximize data transmission in Benayoun et al. in view of Itri ('980) by using a separate channel for the phase error information.

43. Although Benayoun et al. in view of Itri ('980) and Itri ('592) does not teach transmitting the phase relation at the recited frequency, it would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to transmit the phase relation at difference frequencies based on considerations such as system requirements. The frequency at which the phase relation is transmitted

Art Unit: 2611

does not affect the functionality or operation of the circuit disclosed by Benayoun et al. in view of Itri ('980) and Itri ('592).

Allowable Subject Matter

44. Claims 13-15 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

45. The following is a statement of reasons for the indication of allowable subject matter: prior art of record does not teach or suggests in combination a receiver circuit comprised of a first and second variable modulus counter and a modulus control circuit that is responsive to recovered timing data and controls the first and second variable modulus counters.

Conclusion

46. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsy L. Deppe whose telephone number is (571) 272-3054. The examiner can normally be reached on Monday, Wednesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

Art Unit: 2611

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Betsy L. Deppe
Primary Examiner
Art Unit 2611